

MGA 672 - Developing Interactive Systems (5 ECTS), spring 2017 (16 weeks)

Lecturer: Ilija Šmorgun ilja.smorgun@idmaster.eu, Sónia Sousa sonia.sousa@idmaster.eu

Contact Details: All email communication regarding this course should be sent to ilja.smorgun@idmaster.eu cc'ing sonia.sousa@idmaster.eu. Special online “office hours” will be set up for group and individual mentoring and those will be conducted through Google Hangouts.

Course objectives: To provide students with the skills necessary for developing interactive systems.

Course content: The course’s structure is spread over 7 sessions (2 weeks apart). The course consists of the following modules:

- 1) Building blocks of interactive systems;
- 2) Using GitHub for project management and source control;
- 3) Visual programming of mobile applications with App Inventor;
- 4) Developing a functional prototype.

Learning Outcomes: After successfully completing the course students will know:

- 1) How to choose a suitable platform for developing interactive systems;
- 2) How to develop functional prototypes;
- 3) How to work in teams and distribute functionality to be developed among team members.

Workload: To successfully complete this course students are required to do group-based activities.

Expected individual work activities: Individually students are expected to:

- 1) Study the provided materials;
- 2) Complete individual assignments.

Expected group work activities: In groups students are expected:

- 1) Contribute to the development of a functional prototype as defined in MGA 671;
- 2) Participate in group mentoring sessions.

Assessment criteria

To successfully pass the course students are required to:

- Complete individual assignments;

- Maintain and regularly update a GitHub repository for your project with source code and documentation;
- Develop at least one fully functional feature of your group's prototype and provide a detailed explanation of the source code.

The final grade will be composed as follows:

- Individual assignments - 20%
- Group project - 80%

Technology needed to perform this course:

Individual development assignments will focus on visual development of mobile applications with MIT's App Inventor.

For the group projects students are free to choose any platform (for example iOS, Android, Windows, Unity, web, etc.) to develop their functional prototypes.

Synchronous activities:

Bi-weekly synchronous mentoring sessions are planned to last for 30 minutes and specific time slots will be agreed on a group by group basis. In each session we will discuss acquired knowledge, provide feedback and/or mentor students. The times and days of the synchronous sessions will be decided and announced early in the semester.

The pedagogical script for this course:

Session	Topic	Activities	Tools
Module 1: (23.01-05.02)	Building blocks of interactive systems	Understanding of the connection between hardware and software, the various input and output possibilities, as well as the purpose of software libraries and frameworks and how they can be used.	Google Classroom
	Individual assignment 1	Specifying a mobile application prototype.	Google Classroom
Module 2: (06.02-19.02)	Visual programming of mobile applications with App Inventor	Understanding the principles of visual programming with MIT's App Inventor.	Google Classroom MIT's App Inventor

	Individual assignment 2	Developing a mobile application prototype using MIT's App Inventor.	Google Classroom MIT's App Inventor
Module 3: (20.02-05.03)	Using GitHub for project management and source control	Getting familiar with using Git for source code version control. Storing development projects on GitHub. Planning and managing a development project with GitHub.	Google Classroom GitHub
	Group assignment 1	Setting up a GitHub repository for the group project. Drafting development milestones, possible tasks, delivery dates, drafting the prototype specification.	Google Classroom GitHub
Module 4: (06.03-19.03)	Specifying the functionalities of the group project	Specifying the inputs and output possibilities and possible enabling technologies for the group project.	Google Classroom Google Hangouts
	Group assignment 2	Setting up the development environment, providing initial examples of code.	Google Classroom GitHub
Module 5: (20.03-02.04)	Group mentoring session	Planning the prototype development process. Developing an activity plan.	Google Classroom Google Hangouts GitHub
	Group assignment 3	Maturing the prototype's	Google Classroom GitHub

		functionality based on the development plan and feedback received from the lecturers.	
Module 6: (03.04-16.04)	Group mentoring session	Discussing current progress of the project development. Outlining tasks and roles for the upcoming module.	Google Classroom Google Hangouts GitHub
	Group assignment 4	Maturing the prototype's functionality based on the development plan and feedback received from the lecturers.	Google Classroom GitHub
Module 7: (17.04-30.04)	Group mentoring session	Discussing current progress of the project development. Outlining tasks and roles for the upcoming module.	Google Classroom Google Hangouts GitHub
	Group assignment 5	Maturing the prototype's functionality based on the development plan and feedback received from the lecturers.	Google Classroom GitHub
Module 8: (01.05-14.05)	Final presentation of the group project	Presenting the almost final version of the group's prototype. Discussing final improvements to the prototype.	Google Classroom Google Hangouts GitHub
	Group assignment 6	Finalising the prototype's functionality.	Google Classroom GitHub

		<p>Committing the final version of the code to GitHub.</p> <p>Producing a video demonstration of the prototype's functionality.</p>	
--	--	---	--